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| EXAMINER | |
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| HSU, JONI | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. 10/646,076 | Applicant(s) MONTRYM ET AL. | |
|---|---|---|---|
| | Examiner Joni Hsu | Art Unit 2628 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-25 and 27-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25,27-35 and 38-42* is/are rejected.

7)☒ Claim(s) *24,36,37,43 and 44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see p. 12, filed July 30, 2007, with respect to the claim objection have been fully considered and are persuasive. The objection to Claims 2 and 44 is withdrawn.

2. Applicant's arguments filed July 30, 2007, with respect to the 35 U.S.C. 103(a) rejections have been fully considered but they are not persuasive.

3. Applicant argues Fuchs teaches that a subpixel address is determined for sampling by determining a shift of (xoffset, yoffset) which is applied to a pixel address of (x, y) to determine the subpixel address of (x+xoffset, y+yoffset). As such, Fuchs teaches transforming an address into a single subpixel address instead of multiple subpixel addresses as claimed (pages 13-14).

In reply, the Examiner points out that Fuchs teaches that a pixel address (x, y) is subdivided into a grid of **subpixels** so that **each subpixel has an address** of the form (x+xoffset, y+yoffset) (page 119, second column, fourth paragraph). Therefore, each subpixel in the grid of multiple subpixels has a different xoffset and a different yoffset, and therefore each subpixel has a different address. Therefore, the address (x, y) is transformed into multiple subpixel addresses since each of the multiple subpixels has a different address in the form (x+xoffset, y+yoffset) since each of the multiple subpixels has a different xoffset and a different yoffset.

4. Applicant argues that one would not be motivated to combine Morein's (US006188394B1) invention directed to conserving memory resources and reducing sampling size with Fuchs' algorithm which is more costly, requires an increased sample size, and requires more memory resources to implement the algorithm (page 14).

In reply, the Examiner points out that Morein's invention is directed to reducing the amount of memory taken up by the pixel sample sets by compressing pixel sample sets when possible. When the pixel sample set cannot be reduced to a compressed sample set, a pointer is used to point to a selected address in a sample memory at which the complete sample set for the pixel is stored (c. 2, ll. 19-24). Fuchs is merely used for its teaching of transforming the address into multiple subpixel addresses. Incorporating just this teaching into the device of Morein would not modify the device of Morein in such a way as to teach away from the purpose of Morein's invention because this teaching from Fuchs does not change the fact that the device of Morein can still compress pixel sample sets when possible, therefore reducing the amount of memory taken up by the pixel sample sets, which is the purpose of Morein's invention. Incorporating just this teaching from Fuchs would only affect the case where the pixel sample set cannot be reduced to a compressed sample set. In this case, this teaching from Fuchs modifies the device of Morein such that the selected address can be transformed into multiple subpixel addresses to address each of the samples in the complete sample set for the pixel.

5. Applicant argues that Johns (US006366289B1) does not teach of a determination as to whether a memory access is within a virtual frame buffer: Johns teaches that request signals from clients are routed to the virtual frame buffer controller without such a determination (p. 16).

In reply, the Examiner points out that Johns teaches that if the memory address is within a virtual frame buffer, the memory address is transformed and the driver manages the memory to access data at the transformed address (c. 16, ll. 15-23, 55-67), and if the memory address is not within the virtual frame buffer, then the driver manages the memory to access data at the memory address (c. 15, ll. 56-62). Therefore, since different operations are performed depending

on whether or that the memory access is within the virtual frame buffer, this means that there is a determination as to whether a memory access is within a virtual frame buffer.

6. Applicant argues that Morein teaches that "sample memory 38 is the main memory of the system". However, a main memory is different from a frame buffer used for antialiasing (p. 17).

In reply, the Examiner points out that the claims do not recite that the frame buffer must be memory that is local to the video graphics system and cannot be a part of the main memory. In fact, unified memory architecture devices are well-known in the art wherein a part of the main memory is used as a frame buffer. Therefore, even though the sample memory 38 is a part of the main memory, this does not mean that sample memory 38 cannot be a frame buffer.

7. Applicant argues Johns teaches physical address is within the system memory. Applicant fails to find suggestion that physical address is within a frame buffer used for antialiasing (p. 17).

In reply, the Examiner points out that the passage in Johns cited by Applicant (c. 7, ll. 57-62) in fact recites "In most cases, the uncompressed pixel will reside in local video memory, but it may also be in system memory...". Since Johns teaches that in most cases, the physical address is within local video memory, Johns teaches that physical address is within frame buffer. Morein teaches physical address is within frame buffer used for antialiasing (c. 2, ll. 19-23).

***Claim Rejections - 35 USC § 103***

8. The text of those sections of Title 35, U.S. Code 103(a) not included in this action can be found in a prior Office action.

9. Claims 1-4, 9, 10, 13, 15-17, 19, 21-23, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morein (US006188394B1) in view of Johns (US006366289B1).

10. As per Claim 1, Morein describes a method for providing antialiased memory access (c. 2, ll. 46-47; c. 4, ll. 9-13), comprising receiving a request to access a memory address (c. 4, ll. 9-13); and transforming the memory address into at least one physical address within a frame buffer utilized for antialiasing (c. 2, ll. 19-23), wherein the frame buffer (sample memory 38) is a single memory for containing data of a plurality of subpixels (samples) corresponding to a pixel of frame buffer 36 (c. 2, ll. 19-23, 25-31); and accessing data of a subpixel at the at least one physical address within the frame buffer (c. 4, ll. 9-13).

However, Morein does not teach that frame buffer 36 is a virtual frame buffer and determining if the memory address is within a virtual frame buffer and, if so, performing the transforming and accessing. However, Johns teaches that if the memory address is within a virtual frame buffer, the memory address is transformed and the driver manages the memory to access data at the transformed address (c. 16, ll. 15-23, 55-67), and if the memory address is not within the virtual frame buffer, then the driver manages the memory to access data at the memory address (c. 15, ll. 56-62). Therefore, since different operations are performed depending on whether or that the memory access is within the virtual frame buffer, this means that there is a determination as to whether a memory access is within a virtual frame buffer. Johns teaches determining if memory address is within virtual frame buffer and, if so, performing transforming and accessing (c. 16, ll. 15-23, 55-67).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Morein to include a virtual frame buffer device as suggested by Johns because Johns suggests that the display image being managed as the virtual frame buffer appears as if it resides in the frame buffer address space, but in actuality, the display image is

sub-divided into chunks distributed randomly in memory (c. 6, ll. 58-61), which requires less memory than a conventional frame buffer (c. 2, ll. 11-14, 53-66).

11. As per Claims 2 and 22, Morein does not teach accessing data at the memory address provided the memory address is not within the virtual frame buffer. However, Johns teaches that if the memory address is within a virtual frame buffer, the memory address is transformed into a physical address within a frame buffer, and driver manages memory to access data at physical address within frame buffer (c. 16, ll. 15-23, 55-67). If memory address is not within virtual frame buffer, then driver manages memory to access data at memory address (c. 15, ll. 56-62).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein to include accessing data at the memory address provided the memory address is not within the virtual frame buffer as suggested by Johns because Johns suggests the advantage of using the video memory for the frame buffer as well as for other clients such as a compositor (c. 7, ll. 36-51; c. 9, ll. 31-33). If the video memory is being accessed for the frame buffer, then it is advantageous to use a virtual frame buffer, as discussed above for Claim 1. If the video memory is being accessed for other clients such as a compositor, then the video memory can be directly accessed by the compositor (c. 8, ll. 30-33).

12. As per Claims 3, 13, 19, and 23, Morein does not teach that the virtual frame buffer comprises a predefined memory range of a graphics memory.. However, Johns teaches that the virtual frame buffer comprises a predefined memory range of a graphics memory (310, Fig. 3) (c. 16, ll. 15-23, 55-67; c. 15, ll. 56-62; c. 7, ll. 48-51). This would be obvious for the same reasons given in the rejection for Claim 2.

13. As per Claim 4, Morein teaches memory address received from CPU (82; c. 8, ll. 43-45).

14. As per Claim 9, Claim 9 is similar to Claim 1, except that Claim 9 is for accessing data in order to read data. Morein describes accessing data in order to read data (c. 4, ll. 9-13).

15. As per Claim 10, Morein teaches providing subpixel value to a CPU (82; c. 8, ll. 43-52).

16. As per Claim 15, Claim 15 is similar in scope to Claim 9, except Claim 15 is for reading the plurality of subpixel values and combining the subpixel values. Morein describes reading the plurality of subpixel (sample) values at the plurality of physical addresses within the frame buffer (38, Fig. 2; c. 4, ll. 9-13; c. 2, ll. 19-23) and combining the subpixel values to generate a pixel value for the specific pixel (c. 2, ll. 25-31).

17. As per Claim 16, Morein teaches providing pixel value to a CPU (82; c. 8, ll. 21-25).

18. As per Claim 17, Morein teaches that the combining comprises blending the subpixel values into a single color value (c. 2, ll. 25-31).

19. As per Claim 21, Claim 21 is similar to Claim 1, except that Claim 21 is for accessing data in order to write data. Morein teaches accessing data in order to write data (c. 2, ll. 15-19).

20. As per Claim 32, Morein describes receiving an address in frame buffer 36 from the computer program (c. 5, ll. 39-48; c. 9, ll. 64-c. 10, ll. 20); transforming the received address into at least one subpixel (sample) address (c. 5, ll. 39-48; c. 5, ll. 59-c. 6, ll. 2), the subpixel address being an address into a frame buffer (sample memory 38) which is a single memory storing data of a plurality of subpixels corresponding to each pixel of frame buffer 36 (c. 2, ll. 19-23, 25-31); reading at least two subpixels from the frame buffer (sample memory 38) using the subpixel address (c. 4, ll. 9-14); blending the at least two subpixels to create a pixel value (c. 2, ll. 25-31); supplying the created pixel value to the computer program as if it were a pixel value located at

the received address in frame buffer 36; and wherein the computer program does not directly access the frame buffer (sample memory 38) (c. 4, ll. 9-14).

However, Morein does not teach that frame buffer 36 is a virtual frame buffer, and supplying a base address and buffer size information corresponding to a virtual frame buffer. However, Johns discloses a method for supplying a virtual frame buffer to a computer program, comprising supplying a base address and buffer size information to the computer program, the base address and the buffer size information corresponding to a virtual frame buffer (c. 10, ll. 27-30; c. 16, ll. 34-44); receiving an address in the virtual frame buffer from the computer program (c. 16, ll. 59-64); transforming the received address (c. 17, ll. 1-3); reading data using the transformed address; supplying the data to the computer program as if it were a pixel value located at the received address in the virtual frame buffer; and wherein the computer program does not directly access the frame buffer (c. 6, ll. 52-61).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein to include supplying a base address and buffer size information corresponding to a virtual frame buffer as suggested by Johns. Johns suggests that the base address is needed in order to know where the frame buffer starts, and all the addresses can be calculated by adding a certain offset to the base address, which simplifying the calculation of which chunk contains a requested pixel address. The buffer size is needed in order to calculate the correct address (c. 16, ll. 34-44). The advantages of using a virtual frame buffer were discussed in the rejection for Claim 1.

21. As per Claim 33, Morein does not teach the computer program is an operating system. However, Johns teaches the computer program is an operating system (35) (c. 4, ll. 64-67).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein so that the computer program is an operating system as suggested by Johns because Johns suggests that it is well-known in the art to use operating system software to perform operations on memory (c. 1, ll. 42-51).

22. As per Claim 34, Morein does not teach that the computer program is a software driver. However, Johns describes that the computer program is a software driver (c. 13, ll. 8-20).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein so that the computer program is a software driver as suggested by Johns because Johns suggests that using a software driver allows the host to choose the memory management scheme (c. 13, ll. 8-20), making the scheme more flexible.

23. As per Claim 35, Morein teaches that the computer program (84, Fig. 4) is an application program (c. 8, ll. 16-21).

24. Claims 5, 6, 11, 12, 18, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morein (US006188394B1) and Johns (US006366289B1) in view of Dye (US005664162A).

25. As per Claims 5 and 11, Morein and Johns are relied on for teachings above for Claim 4.

However, Morein and Johns do not teach providing the CPU with a pitch value of the frame buffer. However, Dye describes providing the CPU (128, Fig. 1) with a pitch value of the frame buffer (110) (c. 7, ll. 59-66; c. 9, ll. 59-64; c. 12, ll. 10-17).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the devices of Morein and Johns to include providing the CPU with a pitch value of the frame buffer as suggested by Dye because Dye suggests that the CPU needs to know

the pitch value of the frame buffer in order to read data from the correct location corresponding with the virtual frame buffer (116) (c. 3, ll. 49-51; c. 12, ll. 1-24).

26. As per Claims 6, 12, 18, and 25, Morein does not teach the CPU calculating a physical address within the frame buffer using pitch value of the frame buffer as the pitch of the virtual frame buffer. However, Dye teaches CPU 128 calculating a physical address within frame buffer 110 using the pitch value of the frame buffer as the pitch of the virtual frame buffer 116 (c. 3, ll. 49-51; c. 12, ll. 1-24). This would be obvious for the same reasons given for Claim 5.

27. Claims 7, 8, 14, 20, 27, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morein (US006188394B1) and Johns (US006366289B1) in view of Baldwin (US005594854A).

28. As per Claims 7 and 38, Morein and Johns are relied on for teachings above for Claim 1.

However, Morein and Johns do not teach that the plurality of subpixels corresponding to the pixel of the virtual frame buffer have physical addresses that are nearby each other. However, Baldwin describes that the buffer must reside at contiguous physical addresses, and if the virtual memory buffer maps to non-contiguous physical memory, then the buffer must be divided into sets of contiguous physical memory pages (c. 18, ll. 45-52). Therefore, the plurality of subpixels (c. 34, ll. 61-67) corresponding to the pixel of the virtual frame buffer have physical addresses are nearby each other (c. 18, ll. 35-52).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the devices of Morein and Johns so that the plurality of subpixels corresponding to the pixel of the virtual frame buffer have physical addresses that are nearby

each other as suggested by Baldwin because Baldwin suggests that this is needed because the data in the physical memory needs to be transferred together (c. 18, ll. 35-52).

29. As per Claims 8, 14, 20, and 27, Morein does not teach that the physical addresses are also based on a base physical address which corresponds to the memory address. However, Johns teaches that the physical addresses are also based on a base physical address which corresponds to the memory address (c. 10, ll. 26-35).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein so that the physical addresses are also based on a base physical address which corresponds to the memory address as suggested by Johns because Johns suggests that a base physical address is needed as the reference starting point, and all the addresses can be determined by their offsets from the base physical address (c. 10, ll. 26-35).

30. As per Claim 39, it is similar in scope to Claim 32 except it is for writing pixel value and subpixels have nearby physical addresses. Morein teaches writing pixel value (c. 2, ll. 15-19).

However, Morein does not teach that the plurality of subpixels comprise nearby physical addresses. However, Baldwin teaches this limitation as discussed in the rejection for Claim 7.

31. As per Claims 40-42, these claims are similar in scope to Claims 33-35 respectively, and therefore are rejected under the same rationale.

32. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morein (US006188394B1) in view of Fuchs.

33. As per Claim 28, Morein teaches reading a frame buffer (sample memory 38, Fig. 2; c. 2, ll. 19-23; c. 4, ll. 9-13), comprising receiving an address corresponding to a pixel (c. 2, ll. 18-20); transforming the received address into at least one subpixel (sample) address (c. 2, ll. 20-23; c. 2,

ll. 25-31); reading at least two subpixels from the frame buffer using at least one subpixel address (c. 4, ll. 9-13), wherein the frame buffer is a single memory comprising a plurality of pixels, wherein each pixel comprises a plurality of subpixels (c. 5, ll. 44-47; c. 2, ll. 25-31); and blending the at least two subpixels to create a pixel value for the pixel (c. 2, ll. 25-31). The frame buffer stores an uncompressed set of subpixels (c. 5, ll. 57-63).

However, Morein does not teach transforming the received address into multiple subpixel addresses; using at least two of the multiple subpixel addresses to read at least two subpixels. However, Fuchs teaches that a pixel address (x, y) is subdivided into a grid of subpixels so that each subpixel has an address of the form (x+xoffset, y+yoffset) (page 119, second column, fourth paragraph). Therefore, each subpixel in the grid of multiple subpixels has a different xoffset and a different yoffset, and therefore each subpixel has a different address. Therefore, the received address (x, y) is transformed into multiple subpixel addresses since each of the multiple subpixels has a different address in the form (x+xoffset, y+yoffset) since each of the multiple subpixels has a different xoffset and a different yoffset. Fuchs teaches using at least two of the multiple subpixel addresses to read at least two subpixels (p. 119, 2nd col., $4^{th}$ para).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Morein to include transforming the received address into multiple subpixel addresses; using at least two of the multiple subpixel addresses to read at least two subpixels as suggested by Fuchs because Fuchs suggests the advantage of knowing the location of the sample points within the pixel at which to sample in order to perform anti-aliasing (page 119, second column, third and fourth paragraphs).

34. As per Claim 29, Morein teaches supplying the pixel value as if it were a pixel value at the received address (c. 4, ll. 6-14).

35. As per Claim 30, Morein teaches writing a frame buffer (38, Fig. 2) comprising receiving address and pixel value from computer program (84, Fig. 4; c. 2, ll. 19-21; c. 8, ll. 15-27), computer program supplying address and pixel value as if accessing frame buffer that does not comprise subpixels (samples); transforming received address into at least one subpixel address; writing pixel value to frame buffer as multiple subpixel values using at least one subpixel address (c. 2, ll. 19-23, 25-31) wherein frame buffer is a single memory comprising a plurality of pixels (c. 5, ll. 44-47) wherein each pixel comprises a plurality of subpixels (c. 5, ll. 39-44).

However, Morein does not teach transforming the received address into multiple subpixel addresses; and writing the pixel value as multiple subpixel values using the multiple subpixel addresses. However, Fuchs discloses transforming the received address into multiple subpixel addresses; and writing the pixel value as multiple subpixel values using the multiple subpixel addresses (page 119, second column, fourth paragraph). This would be obvious for the same reasons given in the rejection for Claim 28.

36. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morein (US006188394B1) and Fuchs in view of Toji (US007158148B2).

Morein and Fuchs are relied upon for the teachings as discussed relative to Claim 30.

However, Morein and Fuchs do not teach modifying at least one of the multiple subpixel values in the frame buffer based upon a pixel value of a surrounding pixel. However, Toji discloses modifying at least one of the multiple subpixel values in the frame buffer based upon a pixel value of a surrounding pixel (c. 40, ll. 40-47).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the devices of Morein and Fuchs to include modifying at least one of the multiple subpixel values in the frame buffer based upon a pixel value of a surrounding pixel as suggested by Toji because Toji suggests the advantage of allowing a smoother image to be displayed (c. 2, ll. 58-65).

*Allowable Subject Matter*

37. Claims 24, 36, 37, 43, and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH

KEE M. TUNG
SUPERVISORY PATENT EXAMINER